

Project No. 240556

QUARTERLY MONITORING REPORT
POWERINE REFINERY
SANTA FE SPRINGS, CALIFORNIA

July 1987

JUL 29 1987

PREPARED FOR

POWERINE OIL COMPANY
12354 LAKELAND ROAD
SANTA FE SPRINGS, CALIFORNIA 90670

PREPARED BY

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July 1987

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE OF WORK

The purpose of this report is to summarize the results of IT's quarterly ground-water monitoring and sampling, conducted in June 1987, at Powerine Refinery (site), located at 12354 Lakeland Road, Santa Fe Springs, California (Figure 1). Activities included ground-water monitoring, sampling, and laboratory analyses.

2.0 FIELD INVESTIGATION

2.1 GROUND WATER MONITORING AND SAMPLING

The field investigation consisted of monitoring and sampling of fourteen on-site ground-water monitoring wells between June 19 and 30, 1987. The depth to ground water was measured and the presence of free product in the monitoring wells was checked.

In order to minimize the risk of cross-contamination during the monitoring and sampling program, work proceeded in order from wells with the least reported contamination to wells with increasingly contaminated water. In addition, before monitoring and sampling each well, all equipment used within the well (including pumps, tape measures, M-scope, ORS probe, etc.) was washed in a trisodium phosphate (TSP) solution, thoroughly rinsed with tap water, and then rinsed with distilled water.

Prior to sampling each monitoring well, the depth to ground water was measured (Table 1). Either an ORS probe or a steel tape and chain (with water-indicator paste applied to one side of the tape and a gasoline-indicator paste to the other side) was used to determine the depth to water and to detect floating free product. A trace amount of free product was detected in MW-504 (Table 1). Figure 2 shows the water-table elevation contours based on water-level measurements collected from June 19 to 30, 1987. Water table elevations in all of the wells are included in Table 1. The ground water flow direction

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11-1-85
MPS
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11-1-85
APPROVED BY
1-11-85
DRAWING NUMBER
850009-A1

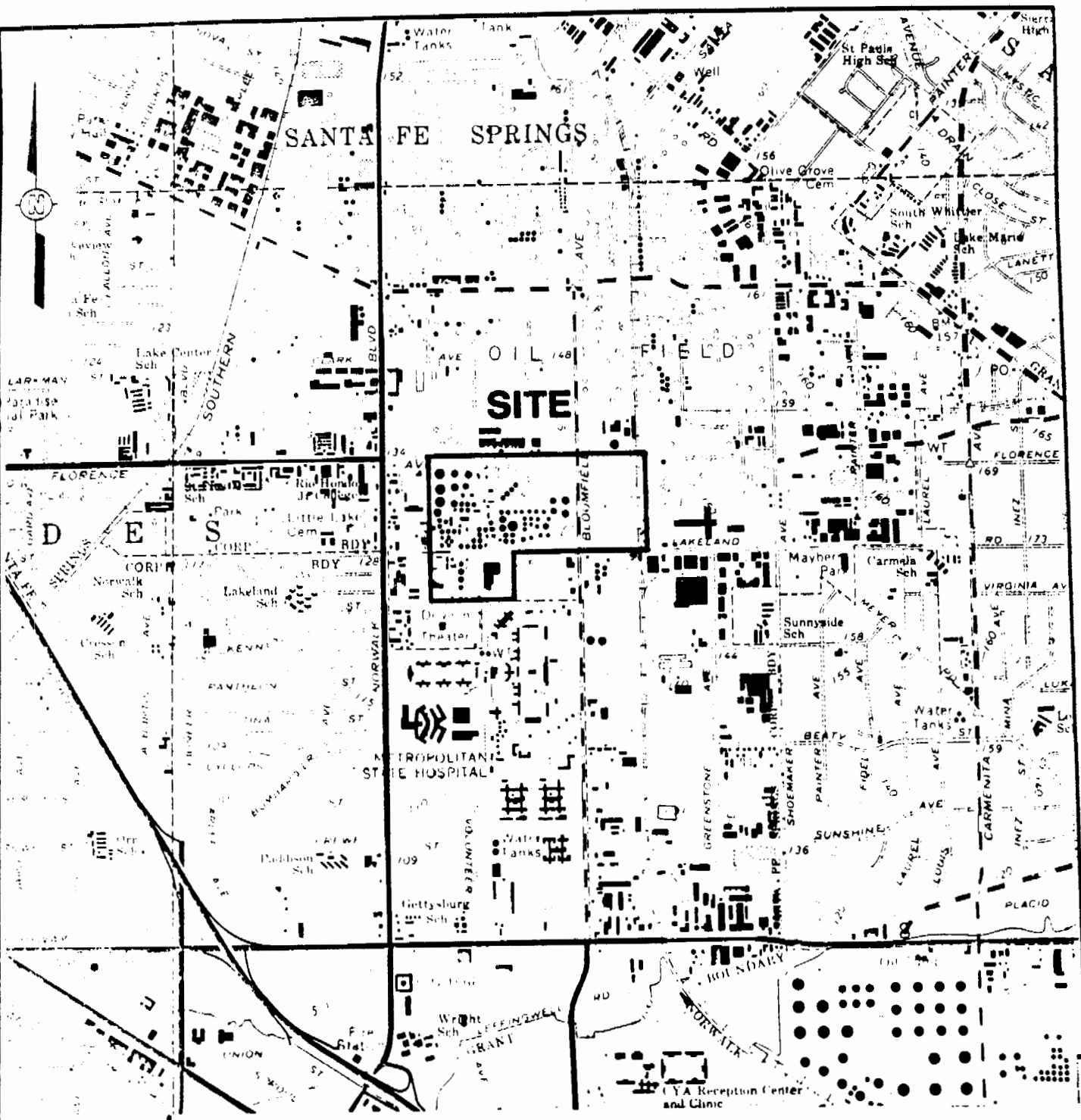


FIGURE 1

SITE VICINITY MAP

PREPARED FOR

POWERINE OIL COMPANY
SANTA FE SPRINGS, CALIFORNIA

REFERENCE:
7.5 MINUTE USGS TOPOGRAPHIC MAP OF
WHITTIER, CALIFORNIA, QUADRANGLE
DATE: 1965, PHOTO REVISED 1981
SCALE: 1" = 2000'



... Creating a Safer Tomorrow

TABLE 1
WATER LEVEL ELEVATION

Monitoring Well No.	Date	Elevation Top of Casing (feet, msl)	Depth to Water (feet)	Water Level Elevations (feet, msl)	Free Product (inches)
MW-101	6/23/87	134.98	86.09	48.89	ND
MW-102	6/30/87	134.81	a	a	a
MW-103	6/25/87	136.95	90.63	46.32	ND
MW-104	6/19/87	141.60	85.71	55.89	ND
MW-201	6/23/87	132.91	87.61	45.30	ND
MW-202	6/30/87	137.89	90.82	47.07	ND
MW-203	6/24/87	143.89	94.36	49.53	ND
MW-204	6/22/87	140.14	93.00	47.14	ND
MW-205	6/22/87	138.17	87.13	51.04	ND
MW-206	6/25/87	129.93	90.04	39.89	ND
MW-501	6/25/87	128.70	89.06	39.64	ND
MW-502	6/30/87	131.19	91.59	39.60	ND
MW-503	6/24/87	131.43	90.06	41.37	ND
MW-504	6/30/87	133.83	89.10	44.73	TR

ND - Not detected
TR - Trace
a - Not measured

FX-9 Wells

is toward the south-southwest, with no major apparent change from the previous monitorings.

Before sampling the ground water, each monitoring well was purged until constant readings of pH, electrical conductivity and temperature in discharged waters were recorded. Two methods were utilized to purge the wells - hand bailing and ejector pumping (Table 2). Purged water was contained in 55-gallon drums to be disposed of by refinery personnel at a later date. Water samples were collected by using a Teflon® bailer.

3.0 LABORATORY TESTING

3.1 Water Samples

Eleven ground-water monitoring wells were sampled this quarter - MW-101, MW-103, MW-104, MW-201, MW-203 through MW-206, and MW-501 through MW-503.

Water was not sampled from monitoring well 504 due to the presence of free product. Well MW-202 was not sampled due to the insufficient volume of water in the well. Well MW-102 could not be sampled because it was found to have been destroyed at the time of monitoring, apparently due to heavy traffic in the area. An attempt to sample the deep water production well No. 6 failed because of problems with the in-place pumping system.

Two ground water samples were collected from each of the remaining wells and were analyzed for benzene, ethylbenzene, toluene, total xylenes (BETX), and total recoverable petroleum hydrocarbon (TPH) as discussed in Subsection 3.2. The BETX samples were stored in 40 ml vials with no air space and preserved with hydrochloric acid. For TPH, the water samples were stored in one-liter glass bottles. All samples were placed in pre-cleaned bottles obtained from the IT Laboratory in Cerritos, California, and were stored on ice before delivery to the laboratory. Samples were entered into the IT Chain-of-Custody forms (Appendix B) to ensure sample integrity and were then delivered to the IT Laboratory for chemical analyses.

TABLE 2
SAMPLE NUMBERS, DUPLICATIONS, AND BLANKS

Sample No.	Duplicate	Date	Time	Purging Method	Sampling Method
MW-101-A MW-101-B		6/23/87	13:10	1-Gal. PVC Bailer	Teflon Bailer
MW-102	Not sampled, the well is destroyed				
MW-103-A1 MW-103-B1	MW-103-A2 MW-103-B2	6/25/87	11:20	Ejector Pump	Teflon Bailer
MW-104-A MW-104-B		6/19/87	10:25	Ejector Pump	Teflon Bailer
MW-201-A MW-201-B		6/23/87	17:10	Ejector Pump	Teflon Bailer
MW-202	Not sampled due to insufficient volume of water in well				
MW-203-A MW-203-B		6/24/87	14:10	Ejector Pump	Teflon Bailer
MW-204-A MW-204-B		6/22/87	15:25	Ejector Pump	Teflon Bailer
MW-205-A MW-205-B		6/22/87	12:40	Ejector Pump	Teflon Bailer
MW-206-A1 MW-206-B1	MW-1206-A MW-1206-B1	6/25/87	16:30	Ejector Pump	Teflon Bailer
MW-206-A2 MW-206-B2	MW-1206-B2	6/26/87	14:45	1-Gal. PVC Bailer	Teflon Bailer
MW-501-A MW-501-B MW-501-A1 MW-501-B1		6/25/87	16:30	Ejector Pump	Teflon Bailer

A = TPH

B = BETX

TABLE 2
(Continued)

SAMPLE NUMBERS, DUPLICATIONS, AND BLANK

Sample No.	Duplicate	Date	Time	Purging Method	Sampling Method
MW-502-A MW-502-B	MW-902-A MW-902-B	6/30/87	11:30	1-Gal. PVC Bailer	Teflon Bailer
MW-503-A MW-503-B		6/24/87	11:20	Ejector Pump	Teflon Bailer
MW-504-A	Not sampled - due to the presence of free product				
MW-1100-A&B	Blank/blank-distilled water only.				
MW-1100 A&B	Control/blank - Distilled water sampled with a precleaned Teflon bailer.				
A = TPH	B = BETX				

For the purpose of quality control, two duplicate samples, MW-902 (from MW-502) and MW-1206 (from MW-206) were submitted for analyses. In addition, a control blank sample (MW-1100), consisting of distilled water collected through a pre-cleaned Teflon bailer, and a blank/blank sample (MW-1000), consisting of the distilled water, were also submitted for analyses.

3.2 Methods of Analysis

Analyses of ground water samples were conducted by IT Analytical Services in Santa Clara, California. The samples were analyzed for benzene, ethylbenzene, toluene, and total xylenes (BETX) using EPA Method 602. Analyses were performed by gas chromatography using photoionization and flame ionization detectors. The samples were also analyzed for TPH in accordance with EPA Method 418.1. For TPH analyses, samples were extracted with repeated portions of 1,1,2-trichlorotrifluoroethane. The extract was dried with sodium sulfate, treated with silica gel to remove polar compounds, and analyzed by infrared spectroscopy.

At the request of Mr. Liu of the Regional Water Quality Control Board, Los Angeles Region, one control sample, MW-1206 (collected from MW-206), was also analyzed for volatile halocarbons in accordance with EPA Method 601. The sample was extracted using the purge and trap technique and analyzed by gas chromatography using a Hall electrolytic conductivity detector.

4.0 GROUND WATER QUALITY

Ground-water analytical data are summarized in Table 3 and 4, and the Certificates of Analysis are provided in Appendix A. Table 3 also includes the results of previous sampling and analyses.

BETX compounds were detected in all the monitoring wells. Benzene is chosen as the indicator parameter to characterize water quality at the site because fluctuations in concentration of ethylbenzene, toluene, and xylene appear to follow the same trend as benzene. Benzene concentrations ranged from 0.6 $\mu\text{g/l}$

TABLE 3
GROUND WATER QUALITY DATA
(ALL CONCENTRATIONS ARE IN $\mu\text{g/l}$,
EXCEPT FOR TPH CONCENTRATIONS WHICH ARE IN mg/l)

WELL NO.	DATE	BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	TPH
MW-101	OCT 1985	TR35	<5	<5	<5	c
	JUL 1986	58	TR5	<1	<1	c
	NOV 1986	62	3.3	1.4	1.5	2
	JAN/FEB 1987	39	2.5	TR<1.0	TR<1.0	2
	JUNE 1987	43	1.6	0.5	2.6	2.7
MW-102	OCT 1985	8400	1200	2400	7300	c
	JUL 1986	3,300	790	<50	3200	c
	NOV 1986	a	a	a	a	a
	JAN/FEB 1987	a	a	a	a	a
	JUNE 1987	b	b	b	b	b
MW-103	OCT 1985	TR190	<25	TR12	<25	c
	JUL 1986	TR4	<1	<1	<1	c
	NOV 1986	78	ND<1.0	2.2	5.7	6
	JAN/FEB 1987	180	1.0	1.0	3.9	11
	JUNE 1987	69	1.3	1.1	3.5	2.4
MW-104	OCT 1985	<1	<1	<1	<1	c
	JUL 1986	<1	<1	<1	<1	c
	NOV 1986	<1	<1	<1	<1	ND<1
	JAN/FEB 1987	ND<1	ND<1	ND<1	ND<1	3
	JUNE 1987	0.6	ND<0.5	0.5	1.5	4.3
MW-201	OCT 1985	1600	140	650	260	c
	JUL 1986	<1	<1	<1	<1	c
	NOV 1986	68	10	10	32	2
	JAN/FEB 1987	70	5.0	4.0	15	3
	JUNE 1987	290	23	12	39	1.0

a - Not sampled due to presence of free product.

b - Not sampled, well is destroyed.

c - Samples not analyzed for constituents indicated.

ND - This compound was not detected; the limit of detection for this analysis is the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

TABLE 3
(continued)

GROUND WATER QUALITY DATA
(ALL CONCENTRATIONS ARE IN $\mu\text{g/l}$,
EXCEPT FOR TPH CONCENTRATIONS WHICH ARE IN mg/l)

WELL NO.	DATE	BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	TPH
MW-202	OCT 1985	1600	280	1500	2200	c
	JUL 1986	8100	73	7700	6300	c
	NOV 1986	b	b	b	b	b
	JAN/FEB 1987	b	b	b	b	b
	JUNE 1987	b	b	b	b	b
MW-203	OCT 1985	24	TR2	TR1	TR2	c
	JUL 1986	50	<1	TR6	18	c
	NOV 1986	88	TR<1.0	1.4	1.9	4
	JAN/FEB 1987	78	TR<1.0	1.0	3.4	4
	JUNE 1987	1.0	1.6	0.7	2.9	1
MW-204	OCT 1985	16	<1	<1	<1	c
	JUL 1986	TR9	<1	<1	<1	c
	NOV 1986	260	15	6.7	41	7
	JAN/FEB 1987	9.2	2.6	TR<1.0	2.3	2
	JUNE 1987	45	2.8	0.7	3.4	ND<1.0
MW-205	OCT 1985	43	<1	<1	<1	c
	JUL 1986	13	<1	<1	<1	c
	NOV 1986	7.5	ND<1.0	ND1.0	1.5	2
DUPLICATE SAMPLE	NOV 1986	12	ND<1.0	ND<1.0	7.1	TR<1
	JAN/FEB 1987	4.3	TR<1.0	ND<1.0	1.2	TR<1
	JUNE 1987	3.6	0.5	0.6	1.5	ND<1.0

a - Not sampled due to presence of free product.

b - Not sampled due to insufficient volume of water in well.

c - Samples not analyzed for constituents indicated.

ND - This compound was not detected; the limit of detection for this analysis is the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

TABLE 3
(continued)

GROUND WATER QUALITY DATA
(ALL CONCENTRATIONS ARE IN $\mu\text{g/l}$,
EXCEPT FOR TPH CONCENTRATIONS WHICH ARE IN mg/l)

WELL NO.	DATE	BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	TPH
MW-206	OCT 1985	4600	78	3000	6200	c
	JUL 1986	3800	TR82	1800	9000	c
	NOV 1986	6800	1800	2700	7100	18
	JAN/FEB 1987	4500	1100	1800	3600	24
DUPLICATE SAMPLE MW-906	JAN/FEB 1987	2600	660	1200	2300	24
	JUNE 1987	3700	1300	1300	3200	6.1
DUPLICATE SAMPLE MW-1206	JUNE 1987	4700	1400	1500	3300	14
MW-501	OCT 1985	c	c	c	c	c
	JUL 1986	1400	290	51	470	c
	NOV 1986	1500	210	67	140	23
	JAN/FEB 1987	1500	160	TR<50	74	9
	JUNE 1987	2200	210	40	78	15
MW-502	JUL 1986	10,000	1200	4100	6900	c
	NOV 1986	6200	1500	4100	8500	24
	JAN/FEB 1987	6300	960	1700	5200	24
DUPLICATE SAMPLE MW-902	JAN/FEB 1987	4300	780	1300	4200	23
	JUNE 1987	13,000	1400	2100	5600	17
DUPLICATE	JUNE 1987	13,000	1400	2100	5100	17
MW-503	JUL 1986	140	<1	<1	740	c
	NOV 1986	95	940	290	1600	c
DUPLICATE SAMPLE	NOV 1986	530	540	270	1200	11
	JAN/FEB 1987	TR<25	440	95	690	15
	JUNE 1987	620	330	360	510	1.2
MW-504	JUL 1986	1700	<20	520	3200	c
	NOV 1986	a	a	a	a	a
	JAN/FEB 1987	a	a	a	a	a
	JUNE 1987	a	a	a	a	a

a - Not sampled due to presence of free product.

b - Not sampled due to insufficient volume of water in well.

c - Samples not analyzed for constituents indicated.

ND - This compound was not detected; the limit of detection for this analysis is the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration would be determined.

TABLE 3
(Continued)

GROUND WATER QUALITY DATA
(ALL CONCENTRATIONS ARE IN $\mu\text{g/l}$,
EXCEPT FOR TPH CONCENTRATIONS WHICH ARE IN mg/l)

WELL NO.	DATE	BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	TPH
BLANKS						
MW-1000	JUNE 1987	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<1
MW-1100	JUNE 1987	1.4	ND<0.5	ND<0.5	ND<1.5	ND<1

a - Not sampled due to presence of free product.

b - Not sampled due to insufficient volume of water in well.

c - Samples not analyzed for constituents indicated.

ND - This compound was not detected; the limit of detection for this analysis is the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

TABLE 4
GROUND WATER QUALITY DATA
EPA METHOD 601
SAMPLE "MW-1206" FROM WELL MW-206

<u>Compound</u>	Concentration	DOHS Action Levels ^(a)
	<u>µg/l</u>	<u>µg/l</u>
Chlorobenzene	1.6	b
Chloroethane	0.5	b
Dibromochloromethane	0.7	b
1,1-Dichloroethane	2.0	6.00
1,2-Dichloroethane	42.0	1.00
Cis-1,2-Dichloroethene	0.9	16.00
Methylene Chloride	0.9	40.0
Trichloroethene	0.6	5.00

- a) State of California, Department of Health Services Recommended Drinking Water Action Levels, September 1986
- b) No action level is found.

to a maximum of 13,000 $\mu\text{g/l}$. MW-104, which is the upgradient background well at the site, showed the lowest benzene concentration of 0.6 $\mu\text{g/l}$. The highest benzene concentrations, ranging from 2,200 $\mu\text{g/l}$ to 13,000 $\mu\text{g/l}$ were observed in MW-206, MW-501, and MW-502, located along the southwest boundary of the site. These findings are consistent with previous results, as reported in Table 3. A comparison of BETX concentrations of June 1987 samples with previous samples shows a general decrease in BETX concentrations in Monitoring Wells MW-103, MW-203, and MW-205, and an increase in Monitoring Wells MW-501, MW-502, MW-206 and MW-503.

TPH concentrations in the ground-water samples ranged from below the detection limit of 1 mg/l to 17 mg/l. The upgradient well, MW-104, showed a TPH concentration of 4.3 mg/l. TPH values higher than those detected in the background well were detected in MW-206, MW-501, and MW-502, located along the southwest boundary of the site.

The complete results of volatile halocarbon analysis of the MW-206 sample are provided in the Certificate of Analysis, Appendix A. Table 4 includes the halocarbon compounds detected in the MW-206 sample. Drinking water action levels, recommended by State of California, Department of Health Services (DOHS) are also included in Table 4. As can be noticed, only concentration of 1,2-dichloroethane exceeded the respective action level for those compounds with established action levels.

Duplicate samples collected from MW-502 showed very consistent BETX and TPH results. Toluene, ethylbenzene, and xylene concentrations in duplicate samples from MW-206 also show similar results, benzene concentrations are within a 12% range. TPH concentrations were not as consistent. This may be due to the fact that duplicate samples from MW-206 were collected at two different times (July 25 and July 26, 1987); whereas, duplicate samples from MW-502 were collected at the same time.

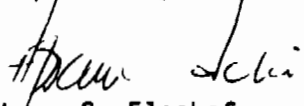
The control blank sample MW-1100 was reported to contain a trace of benzene

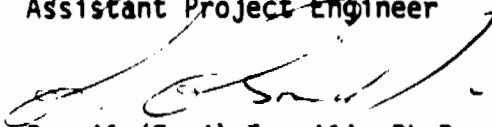
(1.4 µg/l). The blank/blank sample MW-1000, consisting of only distilled water, was reported to be below the detection limit for all analyzed compounds.

5.0 SUMMARY AND CONCLUSIONS

Fourteen ground-water monitoring wells at the site were monitored between June 19 and 30, 1987. Water samples were collected from all wells, with the exception of MW-504, due to the presence of free product in the well, and MW-202 due to an insufficient volume of water in the well. MW-102 was found to have been destroyed, apparently due to heavy traffic in the area. Ground water samples were not collected from the deep production well No. 6 due to problems with the pumping system. All the water samples were analyzed by the IT Laboratory in Santa Clara, California for TPH and BETX. In addition, a sample from MW-206, located at the southwest corner of the site, was analyzed for volatile halocarbons. TPH and BETX compounds were detected in several samples from the uppermost aquifer with the highest concentrations being detected in the wells located along the southwestern boundary of the site. MW-206 also showed some detectable halocarbons. The ground-water flow direction was towards the south-southwest, similar to previous monitorings.

Respectfully submitted,


Abram S. Eloskaf
Assistant Project Engineer


Esmail (Essi) Esmaili, Ph.D.
Project Manager

APPENDIX A
LABORATORY REPORTS



IT Corporation
17461 Derian
Irvine, CA 92714

July 7, 1987

ATTN: Essi Esmaili

Following are the results of analyses on the samples described below.

Project Number: 240556, Powerine Refinery

Lab Numbers: S7-06-174-01;
S7-06-213-01 thru S7-06-213-06
S7-06-219-01 thru S7-06-219-03;
S7-06-221-01 thru S7-06-221-03;
S7-07-006-01 and S7-07-006-02

Number of Samples: 15

Sample Type: Waters

Date Received: 6/23/87; 6/26/87; 6/27/87; 7/1/87

Analysis Requested: Volatile Aromatics, Total Recoverable
Petroleum Hydrocarbons by Infrared
Spectroscopy, Volatile Halocarbons


The method of analysis for volatile aromatics in waters is taken from E.P.A. Method 602. The samples are examined using the purge and trap technique. Final detection is by gas chromatography using a photoionization detector as well as a flame ionization detector.

The method of analysis for total recoverable petroleum hydrocarbons in water is taken from E.P.A. Method 418.1. The sample is extracted with repeated portions of 1,1,2-trichlorotrifluoroethane. The extract is dried with sodium sulfate, treated with silica gel to remove polar compounds, and examined by infrared spectroscopy.

The method of analysis for volatile halocarbons in waters is taken from E.P.A. Method 601. The samples are examined using the purge and trap technique. Final detection is by gas chromatography using a Hall electrolytic conductivity detector.

The E.P.A.'s method for aromatic hydrocarbons (method 602) specifies that the samples be preserved by acidification to pH 2 or less as well as refrigeration of the volatile organics analysis containers. The samples listed below had pHs above 2.

S7-06-174-01, S7-06-213-04, S7-06-219-03


Fred Rouse

FR/jd

15 pages following - Tables of Results

Regional Office

397 Mathew Street • Santa Clara, California 95050 • 408-727-4277

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 6/30/87

Sample Code: MW 104
Sample Date: 6/19/87
Lab. Number: S7-06-174-01

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name -----	-----	
	Detected	Detection Limit
Benzene	0.6	--
Toluene	0.5	--
Ethyl Benzene	None	0.5
Xylenes	1.5	--
Total Recoverable Petroleum Hydrocarbons	4300.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 6/30/87

Sample Code: MW 205
Sample Date: 6/22/87
Lab. Number: S7-06-213-01

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	3.6	--
Toluene	0.6	--
Ethyl Benzene	0.5	--
Xylenes	1.5	--
Total Recoverable Petroleum Hydrocarbons	None	1000.

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ATTN: Essi Esmaili

July 7, 1987
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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 6/30/87

Sample Code: MW 204
Sample Date: 6/22/87
Lab. Number: S7-06-213-02

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	45.	--
Toluene	0.7	--
Ethyl Benzene	2.8	--
Xylenes	3.4	--
Total Recoverable Petroleum Hydrocarbons	None	1000.

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 6/30/87

Sample Code: MW 101
Sample Date: 6/23/87
Lab. Number: S7-06-213-03

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	43.	--
Toluene	0.5	--
Ethyl Benzene	1.6	--
Xylenes	2.6	--
Total Recoverable Petroleum Hydrocarbons	2700.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 6/30/87

Sample Code: MW 201
Sample Date: 6/23/87
Lab. Number: S7-06-213-04

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	290.	--
Toluene	12.	--
Ethyl Benzene	23.	--
Xylenes	39.	--
Total Recoverable Petroleum Hydrocarbons	1000.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
Page 6 of 15

Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 6/30/87

Sample Code: MW 503
Sample Date: 6/24/87
Lab. Number: S7-06-213-05

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	620.	--
Toluene	360.	--
Ethyl Benzene	330.	--
Xylenes	510.	--
Total Recoverable Petroleum Hydrocarbons	1200.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 6/30/87

Sample Code: MW 203
Sample Date: 6/24/87
Lab. Number: S7-06-213-06

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	1.0	--
Toluene	0.7	--
Ethyl Benzene	1.6	--
Xylenes	2.9	--
Total Recoverable Petroleum Hydrocarbons	1000.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
Page 8 of 15

Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 7/1/87

Sample Code: MW 103
Sample Date: 6/25/87
Lab. Number: S7-06-219-01

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	69.	--
Toluene	1.1	--
Ethyl Benzene	1.3	--
Xylenes	3.5	--
Total Recoverable Petroleum Hydrocarbons	2400.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
Page 9 of 15

Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 7/1/87

Sample Code: MW 501
Sample Date: 6/25/87
Lab. Number: S7-06-219-02

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	2200.	--
Toluene	40.	--
Ethyl Benzene	210.	--
Xylenes	78.	--
Total Recoverable Petroleum Hydrocarbons	15000.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 7/1/87

Sample Code: MW 206
Sample Date: 6/25/87
Lab. Number: S7-06-219-03

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	3700.	--
Toluene	1300.	--
Ethyl Benzene	1300.	--
Xylenes	3200.	--
Total Recoverable Petroleum Hydrocarbons	6100.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 7/1/87

Sample Code: MW 1000
Sample Date: 6/26/87
Lab. Number: S7-06-221-01

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	None	0.5
Toluene	None	0.5
Ethyl Benzene	None	0.5
Xylenes	None	1.5
Total Recoverable Petroleum Hydrocarbons	None	1000.

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
Page 12 of 15

Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 7/1/87

Sample Code: MW 1100
Sample Date: 6/26/87
Lab. Number: S7-06-221-02

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	1.4	--
Toluene	None	0.5
Ethyl Benzene	None	0.5
Xylenes	None	1.5
Total Recoverable Petroleum Hydrocarbons	None	1000.

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
Page 13 of 15

Report of Analysis - Volatile Halocarbons, Volatile Aromatics
and Total Recoverable Petroleum Hydrocarbons
by Infrared Spectroscopy

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 7/1/87

Sample Code: MW 1206
Sample Date: 6/26/87
Lab. Number: S7-06-221-03

Method: Modified E.P.A.
601, 602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Bromodichloromethane	None	0.5
Bromoform	None	0.5
Bromomethane	None	0.5
Carbon Tetrachloride	None	0.5
Chlorobenzene	1.6	--
Chloroethane	0.5	--
2-Chloroethylvinyl ether	None	0.5
Chloroform	None	0.5
Chloromethane	None	0.5
Dibromochloromethane	0.7	--
1,2-Dichlorobenzene	None	0.5
1,3-Dichlorobenzene	None	0.5
1,4-Dichlorobenzene	None	0.5
Dichlorodifluoromethane	None	0.5
1,1-Dichloroethane	2.0	--
1,2-Dichloroethane	42.	--
1,1-Dichloroethene	None	0.5
cis-1,2-Dichloroethene	0.9	--
trans-1,2-Dichloroethene	None	0.5
1,2-Dichloropropane	None	0.5
cis-1,3-Dichloropropene	None	0.5
trans-1,3-Dichloropropene	None	0.5
Methylene Chloride	0.9	--
1,1,2,2,-Tetrachloroethane	None	0.5
Tetrachloroethene	None	0.5
1,1,1-Trichloroethane	None	0.5
1,1,2-Trichloroethane	None	0.5
Trichloroethene	0.6	--
Trichlorofluoromethane	None	0.5
1,1,2-Trichlorotrifluoroethane	None	0.5
Vinyl Chloride	None	0.5
Benzene	4700.	--
Toluene	1500.	--
Ethyl Benzene	1400.	--
Xylenes	3300.	--
Total Recoverable Petroleum Hydrocarbons	14000.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
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Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 7/2/87

Sample Code: MW 902
Sample Date: 6/30/87
Lab. Number: S7-07-006-01

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	13000.	--
Toluene	2100.	--
Ethyl Benzene	1400.	--
Xylenes	5100.	--
Total Recoverable Petroleum Hydrocarbons	17000.	--

IT/Santa Clara to IT/Irvine
ATTN: Essi Esmaili

July 7, 1987
Page 15 of 15

Report of Analysis - Volatile Aromatics and Total
Recoverable Petroleum Hydrocarbons

Project Number: 240556,
Powerine Refinery

Dates:
Report: 7/7/87
Analysis: 7/2/87

Sample Code: MW 502
Sample Date: 6/30/87
Lab. Number: S7-07-006-02

Method:
Modified E.P.A.
602 and 418.1

Results
Micrograms per Liter

Compound Name	Detected	Detection Limit
Benzene	13000.	--
Toluene	2100.	--
Ethyl Benzene	1400.	--
Xylenes	5600.	--
Total Recoverable Petroleum Hydrocarbons	17000.	--

APPENDIX B
CHAIN-OF-CUSTODY RECORDS



CHAIN-OF-CUSTODY RECORD

R/A Control No. 023793C/C Control No. 41634PROJECT NAME/NUMBER POWERLINE REFINERYLAB DESTINATION IT ANALYTICAL SERVICES - SANTA CLARA
CERRITOSSAMPLE TEAM MEMBERS ELOSKEF, FLORES

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
MW104A	MONITORING WELL #104	6/19/87	WATER	1000 ML		
MW104B	MONITORING WELL #104	6/19/87	WATER	40 ML		

COPY

Special Instructions: CALL ESSIE ESMAILI UPON RECEIVING SAMPLES 714-261-6441 - KEEP
SAMPLES OVER ICE

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: ALAN (ABRAM ELOSKEF) IT CORPReceived By: [Signature] 6/19/87 5:20

3. Relinquished By: _____

Received by: _____

2. Relinquished By: _____

Received By: _____

4. Relinquished By: _____

Received By: _____



REQUEST FOR ANALYSIS

R/A Control No. 02-97
C/C Control No. 41634
6/19/87
IT SANTA CLARA CERRITOS
ANN O'DONOR
ESSI ESMALI
17461 DERIAN
IRVINE, CA 92714
ASAP
ESSI ESMALI
714-261-0441

PROJECT NAME POWER N/A 40501
PROJECT NUMBER 240556
PROJECT MANAGER ESSI ESMALI
BILL TO _____
PURCHASE ORDER NO. _____

DATE SAMPLES SHIPPED _____
LAB DESTINATION _____
LABORATORY CONTACT _____
SEND LAB REPORT TO _____
DATE REPORT REQUIRED _____
PROJECT CONTACT _____
PROJECT CONTACT PHONE NO. _____

Sample No	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
MW 104A	WATER	1000 ML	NONE	EPA 418.1 - TPH	
MW 104B	WATER	40 ML	HCL	EPA 6002 - BTXE	

TURNAROUND TIME REQUIRED (Rush must be approved by the Project Manager)

Normal ☒

Rush ☐ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard ☐

Flammable ☐

Skin irritant ☐

Highly Toxic ☐

Other ☐ (Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal)

Return to Client ☐

Disposal by Lab ☐

FOR LAB USE ONLY

Received By [Signature]

Date/Time 6/17/87 5:20

WHITE - Original, to accompany samples
YELLOW - Field copy

CHAIN-OF-CUSTODY RECORD

R/A Control No. 023797

C/C Control No. 41633

PROJECT NAME/NUMBER POWERING REFINERY - 240556

LAB DESTINATION IT ANALYTICAL LAB - GERRITUS

SAMPLE TEAM MEMBERS ELIOSLOF, ABRAM

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
MW 205A	MW 205 - TANK FARM	6/22/87 12:35	WATER	1000 ML		
MW 205B	MW 205 - TANK FARM	6/22/87 12:40		40 ML		
MW 204A	MW 204 - TANK FARM	6/22/87 3:25		1000 ML		
MW 205B		6/22/87 3:30		40 ML		
MW 205A	TANK FARM	6/22/87 5:10		1000 ML		
MW 205B		6/22/87 5:15		40 ML		
MW 204A	TANK FARM	6/22/87 5:10		1000 ML		
MW 205B		6/22/87 5:15		40 ML		

COPY

Special Instructions: KEEP ON ICE - CALL ESS1 CONCERNING TURN AROUND TIME

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: ABRAM ELIOSLOF 6/23/87 6:10 PM

3. Relinquished By: _____

Received By: _____

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____

REQUEST FOR ANALYSIS

R// Control No. 41653
 C/C Control No. 41653
 IF ANALYTICAL LAB REQUIRED
 Anne O'Connor
 ESS/ EMAIL
 IT CORPORATION - TRINITY OFFICE

PROJECT NAME WATER
 PROJECT NUMBER 2A 2013
 PROJECT MANAGER ESS/ EMAIL
 BILL TO _____

 PURCHASE ORDER NO. _____

DATE SAMPLES SHIPPED _____
 LAB DESTINATION _____
 LABORATORY CONTACT _____
 SEND LAB REPORT TO _____

 DATE REPORT REQUIRED ASAP
 PROJECT CONTACT ESS/ EMAIL
 PROJECT CONTACT PHONE NO. 714-261-6441

Sample No	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
MA 2013A	WATER	1000 ML	NONE	TPH USING EPA 413.1 METHOD	
MA 2013B	WATER	40 ML	HCL	ETKE USING EPA 602 METHOD	
MA 2014A	WATER	1000 ML	NONE	TPH USING EPA 413.1 METHOD	
MA 2014B	WATER	40 ML	HCL	ETKE USING EPA 602 METHOD	
MA 2014A	1	1000 ML	NONE	TPH - EPA 413.1	
MA 2014B	1	40 ML	HCL	ETKE - EPA 602	
MA 2014A	1	1000 ML	NONE	TPH - EPA 413.1	
MA 2014B	1	40 ML	HCL	ETKE - EPA 602	

TURNAROUND TIME REQUIRED (Rush must be approved by the Project Manager)
 Normal ☒ Rush ☐ (Subject to rush surcharge)
 POSSIBLE HAZARD IDENTIFICATION (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)
 Nonhazard ☐ Flammable ☐ Skin Irritant ☒ Highly Toxic ☐ Other ☐ (Please Specify)
 SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)
 Return to Client ☐ Disposal by Lab ☒

FOR LAB USE ONLY
 Received By _____ Date/Time _____



CHAIN-OF-CUSTODY RECORD

R/A Control No. 030047C/C Control No. 40862PROJECT NAME/NUMBER POWERINE REFINERY 240556 LAB DESTINATION IT ANALYTICAL CERRITOSSAMPLE TEAM MEMBERS ELOSKOF, A CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
MW503A	TANK FARM - MW503	6-24-87	WATER	1000 mL		
MW503B	PARKING LOT			40 mL		
MW203A	TANK FARM - MW			1000 mL		
MW203B				40 mL		

COPY

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time) 6.24.87 4:11 PM1. Relinquished By: ABRAM ELOSKOF IT IRVINE
Received By: Patrick Cull 6/24/87 10:003. Relinquished By: _____
Received by: _____2. Relinquished By: _____
Received By: _____4. Relinquished By: _____
Received By: _____



REQUEST FOR ANALYSIS

R/A Control No. 03, 47C/C Control No. 40862

PROJECT NAME POLYMERINE REFINERY
PROJECT NUMBER 240556
PROJECT MANAGER ESSI ESSMAILI
BILL TO _____

DATE SAMPLES SHIPPED _____
LAB DESTINATION _____
LABORATORY CONTACT _____
SEND LAB REPORT TO _____

6/24/87
11 TERRIOS
ANNE O CONAR
ESSI ESSMAILI
IT RUINE

PURCHASE ORDER NO. _____

DATE REPORT REQUIRED ASAPPROJECT CONTACT ESSIPROJECT CONTACT PHONE NO. (714)-261-6441

Sample No	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
MW503A	WATER	1000 ML	NONE	TPH 418.1	
MW503B	"	40 ML	HCL	BTXE 602	
MW203A	WATER	1000 ML	NONE	TPH 418.1	
MW503B	"	40 ML	HCL	BTXE 602	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager)

Normal ☒Rush ☐

(Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard ☐Flammable ☐Skin Irritant ☒Highly Toxic ☐Other ☐ (Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client ☐Disposal by Lab ☒

FOR LAB USE ONLY

Received By Patrick CullDate/Time 6/24/87 10:00

WHITE - Original, to accompany samples
YELLOW - Field copy



INTERNATIONAL
TECHNOLOGY
CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 023796

C/C Control No. 41637

PROJECT NAME/NUMBER POWERRING FE FINDER 240556 LAB DESTINATION IT ANALYTICAL LAB - CERRITOS

SAMPLE TEAM MEMBERS C-LOSKOF, A CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
MW 20613	> MONITORING WELL	6/25/87 4:35	WATER	1800 ML		
MW 20652	(# 206	4:40	↓	40 ML		

COPY

Special Instructions: HOLD DUPLICATE SAMPLES AT IT CERRITOS UNTIL FURTHER INSTRUCTIONS FROM ESS

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: ABRAM ELOSKOF 6/25/87 6:50
Received By: Patrick Cull 6/25/87 6:50

2. Relinquished By: _____
Received By: _____

3. Relinquished By: _____
Received by: _____

4. Relinquished By: _____
Received By: _____



R/A Control No.

02/95

C/C Control No.

4.25 57

DATE SAMPLES SHIPPED

LAB DESTINATION

LABORATORY CONTACT

SEND LAB REPORT TO

DATE REPORT REQUIRED

PROJECT CONTACT

PROJECT CONTACT PHONE NO.

ASHP

ESSI ESMAIL

714-261-6441

PROJECT NAME

PROJECT NUMBER

PROJECT MANAGER

BILL TO

PURCHASE ORDER NO.[illegible]

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal ☒

Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____

Flammable _____

Skin Irritant ✓

Highly Toxic _____

Other _____
(Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____

Disposal by Lab ✓

FOR LAB USE ONLY

Received By _____

Date/Time _____

WHITE - Original, to accompany samples
YELLOW - Field copy



CHAIN-OF-CUSTODY RECORD

R/A Control No. 023794C/C Control No. 41635PROJECT NAME/NUMBER POWERLINE REFINERY 240556LAB DESTINATION IT ANALYTICAL LAB - CERRITOSSAMPLE TEAM MEMBERS ELOSKEF, A

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
MW 103A1	MONITORING WELL 103	6.25 87 11.20	Water	1000 mL		
MW 103B1		6.25 87 11.20	40 mL	40 mL		
MW 103A2		11.25		1000 mL		
MW 103B2		11.25		40 mL		
MW 501A1	MONITORING WELL 501	2.25		1000 mL		
MW 501B1		2.25		40 mL		
MW 501A2		2.25		1000 mL		
MW 501B2		2.25		40 mL		
MW 200A1	MONITORING WELL 200	4.30		1000 mL		
MW 200B1	-	4.30		40 mL		

Special Instructions: HOLD DUPLICATE SAMPLES AT IT CERRITOS UNTIL FURTHER INSTRUCTIONS B/ESSI

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: ABRAM ELOSKEF 6:50 PM 6/25/87
Received By: Patrick Cullen 6:50 PM 6/25/87

3. Relinquished By: _____

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____



REQUEST FOR ANALYSIS

R/C Control No. 0419
C/C Control No. 41635
62587PROJECT NAME San Juan County
PROJECT NUMBER 240550
PROJECT MANAGER ESSI EMAIL
BILL TO _____

PURCHASE ORDER NO. _____DATE SAMPLES SHIPPED _____
LAB DESTINATION _____
LABORATORY CONTACT _____
SEND LAB REPORT TO _____IT ANALYTICAL LAB - CERROS
ANN O'CONNOR
ESSI EMAIL
IT TRIVIEDATE REPORT REQUIRED ASAPPROJECT CONTACT ESSI EMAILPROJECT CONTACT PHONE NO. 714-261-6041

Sample No	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
MW 103 A1	WATER	1000ML	NONE	TPH - EPA 4181 METHOD	
MW 103 B1		40ML	HCL	BTEX - EPA	
MW 103 A2		1000ML	NONE	DUPLICATE SAMPLES - HOLD	HOLD UNTIL FURTHER
MW 103 B2		40ML	HCL	IT CERROS	INSTRUCTIONS
MW 501 A1		1000ML	NONE	TPH - EPA 4181 METHOD	
MW 501 B1		40ML	HCL	BTEX - EPA 602 METHOD	
MW 501 A2		1000ML	NONE	DUPLICATE SAMPLES -	HOLD UNTIL FURTHER
MW 501 B2		40ML	HCL	HOLD AT IT CERROS	INSTRUCTIONS
MW 206 A1		1000ML	NONE	TPH - EPA 4181 METHOD	
MW 206 B1		40ML	HCL	BTEX - EPA 602 METHOD	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager)

Normal ☒Rush ☐ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard ☐Flammable ☐Skin Irritant ☒Highly Toxic ☐Other ☐ (Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client ☐Disposal by Lab ☒

FOR LAB USE ONLY

Received By _____

Date/Time _____

WHITE - Original, to accompany samples
YELLOW - Field copy



CHAIN-OF-CUSTODY RECORD

R/A Control No. 059178C/C Control No. 40864PROJECT NAME/NUMBER POWERLINE REFINERY 2A0556LAB DESTINATION IT SANTA CLARASAMPLE TEAM MEMBERS ELOSOF, A

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
MW 1000A1	MW 1000	6.26.87	WATER	1000 ml		
MW 1000B1				40 ml		
MW 1100A1	MW 1100			1000 ml		
MW 1100B1				40 ml		
MW 1200A1	MW 1200			1000 ml		
MW 1200B1				40 ml		
MW 1200B2				40 ml		

Special Instructions: CALL ESSI UPON COMPLETION OF RESULTS.Possible Sample Hazards: SKIN IRRITANT

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: ABRAM ELOSOF 6.26.87 4:45Received By: P. Cull 4/26/87 16:45

2. Relinquished By: _____

Received By: _____

3. Relinquished By: _____

Received by: _____

4. Relinquished By: _____

Received By: _____



REQUEST FOR ANALYSIS

R/ ntrl 0111
C/C Control No. 40864PROJECT NAME POWERLINE REFINERY
PROJECT NUMBER 240556
PROJECT MANAGER ESSI ESMALI
BILL TO _____DATE SAMPLES SHIPPED 6.24.97
LAB DESTINATION IT SANTA CLARA
LABORATORY CONTACT _____
SEND LAB REPORT TO ESSI ESMALI
IT IRVINE OFFICE

PURCHASE ORDER NO. _____

DATE REPORT REQUIRED ASAP
PROJECT CONTACT ESSI ESMALI
PROJECT CONTACT PHONE NO. 714-261-6441

Sample No	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
MW 1000A1	WATER	1000 ml	NONE	EPA 4181	
MW 1000B1		40ML	HCL	EPA 602	
MW 1100A1		1000 ml	NONE	EPA 4181	
MW 1100B1		40ML	HCL	EPA 602	
MW 1206A1		1000 ml	NONE	EPA 8015	
MW 1206B1		40ML	HCL	EPA 602	
MW 1206B2		40ML	HCL	EPA 601	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal ☒Rush ☐ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard ☐Flammable ☐Skin Irritant ☒Highly Toxic ☐Other ☐ (Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client ☐Disposal by Lab ☒

FOR LAB USE ONLY

Received By P. CuthDate/Time 6/26/97 1045WHITE - Original, to accompany samples
YELLOW - Field copy



REQUEST FOR ANALYSIS

H/A Control No. 0437,3C/C Control No. 416156-30-87

PROJECT NAME

PROJECT NUMBER

PROJECT MANAGER

BILL TO

DATE SAMPLES SHIPPED

LAB DESTINATION

LABORATORY CONTACT

SEND LAB REPORT TO

Essi Esmaili, IT Irvine

PURCHASE ORDER NO.

DATE REPORT REQUIRED

PROJECT CONTACT

PROJECT CONTACT PHONE NO.

ASAPEssi Esmaili(714) 261-6441

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
MW-902-A	GW	2x40ml	11C1	EPA 602	
MW-902-B		1000ml	H ₂ SO ₄	EPA 418.1	
MW-902-C		2x40ml	11C1	EPA 602	
MW-502-B	✓	1000ml	H ₂ SO ₄	EPA 418.1	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal ☒Rush ☐

(Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard ☐Flammable ☐Skin Irritant ☐Highly Toxic ☐Other ☐

(Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client ☐Disposal by Lab ☒

FOR LAB USE ONLY

Received By [Signature]

Date/Time

6/30/87 @ 12:10



CHAIN-OF-CUSTODY RECORD

R/A Control No. 023798C/C Control No. 41615PROJECT NAME/NUMBER Powder / 24556

LAB DESTINATION _____

SAMPLE TEAM MEMBERS Peoples (Pool)

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
MW-511-1	McWell MW902	6-30-87/11:00	GW	Glass		
MW-902-1	↓	↓	↓	↓		
MW-502-A	↓ MW-502	↓	↓	↓		
MW-502-B	↓	↓	↓	↓		

COPY

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Chris Peoples, IT Inc, 6-30-87 12:10

3. Relinquished By: _____

Received By: John Jones @ 12:10 - 6/30/87

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____